

## SPECIFICATION

### CABLE END CONNECTOR ASSEMBLY HAVING PULL TAB

#### CROSS-REFERENCE TO RELATED APPLICATIONS

**[0001]** Relevant subject matter is related to copending U.S. Patent Application with an unknown serial number and entitled "CABLE END CONNECTOR ASSEMBLY HAVING PULL TAB", invented by the same inventor and assigned to the same assignee as this application.

#### BACKGROUND OF THE INVENTION

##### 1. Field of the Invention

**[0002]** The present invention generally relates to a cable end connector assembly, and more particularly to a cable end connector assembly having a flexible pull tab.

##### 2. Description of Related Art

**[0003]** It is well known that a cable end connector assembly comprises a cable end connector and a cable electrically terminated to the cable end connector. The cable end connector assembly is usually matable with a complementary connector for transmitting signals from the cable to the complementary connector.

**[0004]** However, a panel of a chassis to which the complementary connector is mounted may have so many components mounted thereon that an operator can only pull the cable of the cable end connector assembly to separate the cable end

connector assembly from the complementary connector if there is no additional device. This may cause wires of the cable be divorced from contacts of the cable end connector, and thus, influences the signal transmission between the cable end connector assembly and the complementary connector inevitably. To solve this problem, different kinds of pull mechanisms are designed. For example, U.S. Patent Nos. 4,379,361, 6,126,479 and 6,416,353 each disclose a pull tab or pull mechanism to solve the problem mentioned above.

**[0005]** U.S. Patent No. 4,379,361 discloses a pull tab received in a housing of a cable termination assembly and having a plurality of openings for receiving respective deformed parts of signal conductors of a cable. This kind of pull tab is difficult to assemble to the cable termination assembly and the structure thereof is relatively complex.

**[0006]** U.S. Patent No. 6,416,353 discloses an IDC (Insulation Displacement Connection) connector assembly which comprises a housing, a cable terminated to contacts received in the housing, a first cover assembled to the housing and the cable, and a second cover assembled to the first cover and the housing and functioning as a pull mechanism for separating the connector assembly from a complementary connector. However, the occupied space of the second cover is relatively big for some special applications.

**[0007]** U.S. Patent No. 6,126,479 discloses an IDC connector assembly which comprises an elongated housing containing a plurality of contacts therein, a cable electrically terminated to the contacts, an elongated cover assembled to the housing and the cable, and a flexible pull tab received in a slot defined between longitudinal sides of the cover. The elongated cover needs to be high enough for ensuring a rigidity thereof and for resisting a pulling force exerted on the pull tab, so it is still undesirable for some special circumstances.

**[0008]** Hence, a cable end connector assembly with an improved pull tab

structure is needed to address the problems encountered in the related art.

## SUMMARY OF THE INVENTION

**[0009]** An object of the present invention is to provide a cable end connector assembly having a pull tab for separating the cable end connector assembly from a complementary connector more conveniently.

**[0010]** Another object of the present invention is to provide a cable end connector assembly which is simple in structure and easy to manufacture.

**[0011]** In order to achieve the objects set forth, a cable end connector assembly in accordance with the present invention comprises an insulative housing, a plurality of electrical contacts received in the insulative housing, a cable electrically terminated with the electrical contacts, an insulative cover assembled to the insulative housing, and a pull tab. The insulative cover comprises a first face engaging with the cable and a second face opposite to the first face. The pull tab is assembled to the cover and wraps the second face of the cover.

**[0012]** Other objects, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0013]** FIG. 1 is a partially exploded, perspective view of a cable end connector assembly in accordance with the present invention;

**[0014]** FIG. 2 is a view similar to FIG. 1, but taken from a different aspect;

**[0015]** FIG. 3 is a perspective view of a cover of the cable end connector assembly;

**[0016]** FIG. 4 is a view similar to FIG. 3, but taken from a different aspect;

**[0017]** FIG. 5 is an assembled view of the cable end connector assembly of

FIG. 1;

[0018] FIG. 6 is a view similar to FIG. 5, but taken from a different aspect;

[0019] FIG. 7 is a view similar to FIG. 6, but taken from still another aspect;

[0020] FIG. 8 is a cross-sectional view of the cable end connector assembly taken along line 8-8 of FIG. 5;

[0021] FIG. 9 is a cross-sectional view of the cable end connector assembly taken along line 9-9 of FIG. 5; and

[0022] FIG. 10 is a cross-sectional view of the cable end connector assembly taken along line 10-10 of FIG. 5.

## DETAILED DESCRIPTION OF THE INVENTION

[0023] Reference will now be made in detail to the preferred embodiment of the present invention.

[0024] Referring to FIG. 1 and FIG. 2, a cable end connector assembly 1 in accordance with the present invention comprises an elongated insulative housing 2, a plurality of electrical contacts 6 received in the insulative housing 2, a cover 3 securely attached to the insulative housing 2, a cable 4 and a pull tab 5.

[0025] Continuing to FIG. 1 and FIG. 2, the insulative housing 2 comprises a base 20 and a D-shaped mating portion 22 protruding from a center of the base 20. The insulative housing 2 also comprises a mating face 220 and a termination face 200 opposite to the mating face 220. A pair of slits 23 is respectively defined in opposite lateral ends of the base 20. A transverse U-shaped guiding post 21 extends forwardly from one of the lateral ends of the base 20. A pair of engaging portions 24 extends outwardly from the pair of opposite lateral ends of the base 20, respectively. Each engaging portion 24 is formed with a first and a second retaining wedges 240, 242. A pair of grooves 25 is respectively defined in opposite outer

surfaces of the base 20. A receiving space 222 is defined rearwardly from the mating face 220 of the insulative housing 2 to form a continuous periphery wall (not labeled). A plurality of passageways 26 is defined in the periphery wall of the insulative housing 2 and extends from the termination face 200 toward the mating face 220 of the insulative housing 2.

**[0026]** Together referring to FIG. 9, each of the electrical contacts 6 comprises a contacting portion 60 received in a corresponding passageway 26 of the insulative housing 2 for electrically connected to the complementary connector, an insulation displacement portion 64 opposite to the contacting portion 60 and exposed outside the termination face 200, and a retention portion 62 interconnecting the contacting portion 60 and the insulation displacement portion 64 and interfering with inner surfaces of the corresponding passageway 26.

**[0027]** Referring to FIGS. 1-2, and in conjunction with FIGS. 3-4, the insulative cover 3 is made of insulative material such as plastic and comprises an elongated main body 31 and a pair of opposite ends 30 formed integrally with the main body 31. Each end 30 defines a recess 300 therethrough and forms a latch 302 extending outwardly along an outmost surface thereof. The main body 31 comprises a first face 316, an opposite second face 318, and a plurality of grooves 314 defined in the first face 316 thereof. A pair of ribs 310 extends outwardly from opposite side faces 313, 315 of the main body 31, respectively to form a pulling section for engaging with the pull tab 5. Each rib 310 defines a slot 312 along a longitudinal direction thereof and communicating with a corresponding upper surface 313 or lower surface 315 of the main body 31.

**[0028]** The cable 4 comprises a plurality of conductors 40 for respectively connecting to the electrical contacts 6.

**[0029]** Referring to FIGS. 5-10, in assembly, the cable 4 is terminated to the termination face 200 of the insulative housing 2 with the conductors 40 thereof

electrically terminated with the insulation displacement portions 64 of the electrical contacts 6. The cover 3 is secured to the insulative housing 2 for preventing the cable 4 from separating from the electrical contacts 6. The pair of latches 302 of the cover 3 respectively latches with the first and the second retaining wedges 240, 242 by stages with the engaging portions 24 of the insulative housing 2 respectively received in the recesses 300 of the cover 3 for securing the cover 3 to the insulative housing 2. The conductors 40 of the cable 4 and the insulation displacement portions 64 of the contacts 6 are respectively received in the grooves 314 of the cover 3 (FIG. 9). The pull tab 5 is made of flexible plastic or plastic-like sheet material. In assembly, one end of the pull tab 5 first extends through the slot 312 defined in the rib 310 formed on the side face 313 of the cover 3, wraps the second face 308, and finally extends through the other slot 312 of the cover 3 to overlaps with the other end of the pull tab 5. Thus, the pull tab 5 forms a pair of receiving portions 50 respectively enclosing the pair of ribs 312, a flat portion 54 connected the pair of receiving portions 50 and wrapping the second face 308 of the cover 3, and an overlapped pulling portion 52 formed by the ends for being dragged by a user.

**[0030]** When the cable end connector assembly 1 is to be disengaged from the complementary connector, the user only needs to drag the pulling portion 52 of the pull tab 5. At that time, the receiving portions 50 of the pull tab 5 exert the dragging force on the ribs 310 with the flat portion 54 abutting against the second face 318 of the cover 3. Under the same dragging force for disengaging the cable end connector assembly 1 from the complementary connector, the pull tab 5 in accordance with the present invention distributes the dragging force to the pair of ribs 310 and the second face 318 of the cover 3. The contacting area between the pull tab 5 and the cover 3 is increased. Thus, the force exerted on each rib 310 of the cover 3 is reduced and the cover 3 is not easy to break down.

**[0031]** It is to be understood, however, that even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size, and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.